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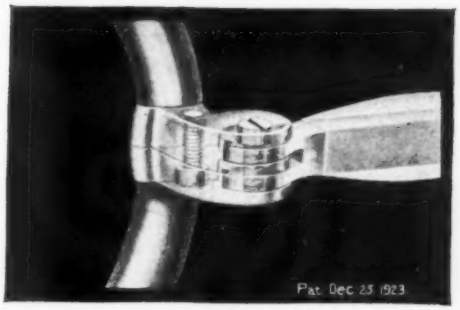

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Say: I saw it in the American Journal of Optometry

AMERICAN JOURNAL OF OPTOMETRY
Vol. 3 JUNE, 1926 No. 6

SUGGESTED ROUTINE IN OPTOMETRIC EXAMINATIONS

C. A. Perrigo, Opt. D.

Fremont, Neb.

PART III

Innervation and Fusional Reserve

In making the test as outlined above the numerals indicate the amount of phoria at near. We'll say the arrow stands at the black figure six, but upon turning prisms base-in to bring the two arrows into alignment, we may find it requires twelve or fifteen prism diopters. This would indicate a lack of innervation and calls for prism treatments, or better, exercises on the Kratometer.

With the near correction still before the patient the fusional reserve should also be investigated. This is found by applying prism base-out until a vertical line of reading type doubles before the patient. A fusional reserve of less than twenty prism diopters is in all probability **insufficient** and should be taken care of by prism exercises if possible, but if this is impracticable sufficient prism base-in should be given for reading to bring about the required reserve.

That this test of fusional reserve is important was demonstrated to me the other day. A man of forty-five presented himself, complaining principally of photophobia under electric lights. His eyes were red and inflamed and his pupils were very small, so small that the reflex with the retinoscope was difficult to perceive. He registered only two prism diopters of exophoria at distance without lenses and only eleven with his near correction, but upon turning on prism base-out to test his reserve fusion he had diplopia at once.

Positive and Negative Relative Accommodation

It is just as necessary to explore the accommodation at the near point with the convergence fixed as it is to fathom the fusional reserve with the accommodation active. The strongest minus lens the patient can overcome at the near point without blurring is his positive relative accommodation. and the strongest plus lens he can relax to at the near point without blurring is his negative relative accommodation. (By near point in these sentences I mean reading distance.) In my practice if the positive relative accommodation does not exceed the negative relative accommodation in the ratio of three to two I supply additional plus to make it so.

The Subjective Test

We now come to the least important part of the examination. Don't gasp! Let me make a comparison. A tourist in a strange country asks each of five men individually the best road to the next town. Four of the men indicate one direction while the fifth indicates another. It would be perfectly natural for the tourist under these conditions to follow the advice of the four. So then in an optometric examination if several different objective methods indicate a certain course as the proper solution to the difficulty, why should we cast all this evidence aside merely because the patient will not accept the results subjectively? Why not let the majority rule?

With those persons where cataract is more or less developed and the skiascopic findings are somewhat difficult to read, one may have to place considerable reliance in the subjective test. Also in those cases of extreme anisometropia where the patient has not been wearing an approximate correction, the optometrist may properly be influenced by the subject as to the degree of correction advisable to apply. But aside from cases of this sort the subjective test should merely corroborate what the optometrist has already determined for himself.

With the dynamic findings still before the eyes of the patient, we now direct his attention to the electric chart. Usually he will be barely able to discern the 200-foot letter. We now slowly decrease binocularly the correction a quarter diopter at a time, stopping just before we reach the

point which we know is the approximate correction for the eye taking the greater amount of plus. If from what has been learned objectively we know the patient is myopic and there is a difference in the two eyes, we stop, say half or three-quarters of a diopter short of the correction for the eye taking the least amount of minus. We are now ready to check up on the astigmatism as indicated by the ophthalmometer and retinoscope. With one eye occluded we check the astigmatism on each eye separately, and if either eye still has subnormal vision for distance reduce the correction for that eye as long as improvement is apparent. After having brought each eye up to normal if possible, release both eyes and try binocularly to get on another quarter diopter of plus. You will be surprised how often you can do this. Should you find the subjective test completely abrogates your objective findings exercise your judgment and prescribe what is best for the patient **regardless of how much he can see.**

Rechecking Distance Phoria

After arriving at the subjective correction for distance it is well to go back to the distance phoria test and observe the effect of the distance lenses. If the phoria is aggravated by the distance correction, it certainly is not right. If it alleviates the distance phoria, the correction is surely in the right direction. If a distance phoria be of sufficient magnitude to warrant consideration and it is not materially helped by the distance correction, the optometrist must decide what additional measures are necessary.

Rechecking Reading Correction

After completing the subjective test for distance it is but the work of a few moments to place your dynamic and cross-cylinder findings again before the eyes of the patient and ascertain whether they are comfortable for near work. If you have done your work well the findings will be satisfactory, if not the necessary adjustments will have to be made.

The Ophthalmoscope

I have purposely left this part of the examination until now, because it is a logical step to take when we find we cannot get normal vision in the subjective test. We have previously determined objectively the lenses which should give normal vision and when they fail to do so, it is in order to investigate why. To my mind there can be no valid objection to deferring the ophthalmoscopic examination until the optometrist has exhausted every possible means within his power to bring the subject's vision back to normal. In pathological cases where vision is not materially reduced still no harm is done in using the ophthalmoscope as the last step.

Prior to the subjective test a careful prolonged study of the fundus and internal conditions of the eye may blunt the vision. Then to it is not always possible by any means for the examiner to determine the potential vision of a subject merely from what he sees with the ophthalmoscope. That is one thing we are more or less dependent upon the subject to tell us.

Some two or three years ago the writer was present at a clinic in charge of one of our nationally known clinicians. The clinician was demonstrating objective methods, omitting the subjective part of the examinations. A lady presented herself and the clinician diagnosed the condition of one eye as a "torn retina." Later examination by others present brought out the correct diagnosis as arterio-sclerosis, corroborated by a history of high blood pressure. Now, I am not censuring the clinician, but had he been making subjective tests he, no doubt, would have been less hasty in diagnosing the condition in this case. In arterio-sclerosis, except in greatly advanced stages, the visual acuity is not usually impaired, while in a torn retina the contrary would be true. The instance illustrates that in a routine based on natural sequence, the ophthalmoscope should come after the subjective test.

Summary

After completing the examination it is not always wise to determine at once the actual prescription to be given. A casual study of all the details will often suggest a procedure to the examiner that does not occur on the spur of the moment. Certainly when success or failure depend entirely upon the effects a lens may have upon an individual it behooves one to weigh well the elements involved before making final decision.

PRACTICAL NOTES AND CURRENT REFRACTIVE TOPICS

R. M. Peckman, Opt. D.,
Waterbury, Conn.

PHYSIOLOGICAL OPTICS

The science of Physiological Optics concerns itself exclusively with the physical phenomena of Vision. It enters not the field of Sight, which is a matter of nervous function and psychic interpretation. The study of physiological optics is but one of the branches of Optometric investigation. Although it is an immense subject with manifold ramifications, any one of which might occupy a lifetime of study, yet it deals only with the image on the retina and the phenomena connected with that emplacement. But getting the image on the retina is the smallest part of the function of Sight. We have, fortunately, passed the day when we considered Optometric practice as consisting only of refracting an image to sharp focus on the macula. Today, we know that Optometry's problem centers around what happens behind the retina after the image reaches it.

The difference between mere Vision and actual Sight can never be more lucidly conceived or set forth than in Dr. Bush's article in the May issue of this Journal. The Optometrist who contents himself with becoming merely a Physiological Opticist, with never a thought further than finding the lenses that "fit" the manifest refractive errors of the eyes entrusted to his care, can never become expert in relieving the difficulties of "Seeing" experienced by the myriads who suffer from eye-strain. Fitting the manifest error is not Optometry, not in the modern sense of that word as exemplified in the practice and teaching of our leading practitioners.

He who stops at the point where Physiological Optics leave off, be he ever so learned in that one branch, is not much more than a highly educated spectacle fitter. He who advances further, and studies the laws of nervous functioning, the neuromuscular reflexes of visual stimuli, puts himself in position to become of vast service to suffering hosts whose physical and mental distress are entirely due to binocular incoordinations.

If humans were a one-eyed species, or if they lacked the faculty of singular binocular vision, then the whole study of Optometry would be limited to the field of Physiological Optics. But being as they are, and with this function of fusion of two images into one as the dominating characteristic of human seeing, the optometrist, if he would be worthy of his calling, must set Physiological Optics in its proper place, as a subsidiary body.

That low blood pressure is one of the symptoms accompanying esophoria, that a swollen colon with acute pains often wrongly diagnosed as appendicitis can come from the effort of accommodation in latent hyperopia, that sufferers from amanesia are invariably afflicted with eye strain, that chronic indigestion, dyspepsia and constipation are often reflexes from binocular imbalances, is understandable to the Optometrist who studies the functions of Sight. But to him who considers Optometry mainly as lens fitting, following the laws of Physiological Optics as his guide, these things pass his understanding.

There is no thought, in these words, of belittling the study of Physiological Optics. We doubt if there is as much time spent in studying this subject as there ought to be. But Physiological Optics does not enter the field of either nervous or mechanical monocular or binocular functioning. It makes no note of the fact that an improperly innervated organ presents all the aspects of a structurally imperfect organ. It is not cognizant of the part played by convergence in hiding the true structural error; it merely takes the apparent refractive condition at its face value as the true error. Thus, the one who depends on skiascope and subjective methods, only, for an estimate of the ocular ability or disability, is far too often led astray.

So he who bases his optometric practice on the few and simple rules of Physiological Optics, unappreciative of nature's functional methods, goes his merry way, "crowding on the plus" in cases of accommodative exophoria;

fitting an apparently myopic child with minus lenses so that she shall "See 20/20," thus producing an esophoria with its sequilla of progressive myopia; putting base out prisms on esophores; performing other equally unskilful acts, and always justifying his errors by the claim that he made the patient "See better," and, therefore, function or no function, law or no law, comfort or discomfort, "The glasses have improved vision, so they must be right." Always he talks of "Improving vision," never does he think in terms of enabling a function to function better, thus easing the efforts of Sight, or making Sight more efficient.

We study all the varied branches of our work to enable us to fathom and interpret Nature's immutable laws, and, by following those laws, bend Nature to our insistent will. We should not make a fetich of any one law, for there will be other laws that operate in mitigation of that one. The whole must ever be considered as the sum of its parts, and no one part may be considered alone.

A brilliant illustration of the difference between the old-time lens fitter and the modern Optometrist is Dr. Farmer's report, in the March issue of this Journal, of a case of post-operative exotropia corrected by the temporary use of minus spheres. This is an old and well recognized treatment for children with incipient exotropia, but to utilize it for the correction of an exotropia in an adult, especially when that exotropia had been caused by the blunder of an ophthalmologist who doubtless was a good student of Physiological Optics but a poor student of the Physiology of Sight, shows an understanding and appreciation of the laws of Binocularity.

We need more knowledge of the mechanics of Sight. This is of definite use in our daily work. The laboratory work in Physiological Optics, important as it is, is of little consequence unless it brings us to a better understanding of the Physiology of Sight. As an illustration of the possibilities of this, I may cite the Feree-Rand studies in intensities of illumination and speed of response and Engelking's studies in color sense from which he deduces color vision as a factor in stereoscopic vision.

CONVERGENCE INSUFFICIENCY

There are three distinct types of Convergence Insufficiency. While the manifestations are the same, the symptoms quite similar, yet the causes are different and the treatments must differ. Only careful analysis will discover the particular type from which the patient suffers, and the wrong treatment will invariably add to his discomfort.

True insufficiency is due to arrested development of the function of convergence. It is to be regarded as a "Vestigial Trace" of the visual habits of our primordial ancestors, to whom convergence was unnecessary and unknown. It is as much incomplete development as is the hypermetropic eyeball.

In young people, the principal symptom is difficulty in maintaining vision at close work. The allied function of accommodation becomes exhausted and in the examination we find low amplitudes of both accommodation and convergence. These youngsters accept with readiness +0.50 to +1.00 spheres for reading, and it has been the custom, particularly among the oculists to prescribe "Rest Glasses" for near work. We must never forget that an improperly innervated organ presents all the clinical aspects of a structurally imperfect organ, and it is very easy to make a wrong diagnosis. These young people do not need "Rest Glasses." These patients are to be taken in hand and the functions of convergence and accommodation "educated" by proper innervational excerises, based on physiological processes. Such exercises can be successfully carried out by the Hazen method of prism "jumps," but exercises with rotary prisms will prove absolutely futile.

In older people, especially those of presbyopic age, the symptom is inability to read without fatigue, and the reserve adduction is found to be low and slow in responsiveness. The same exercises are to be given. The writer has not been able to find confirmation of the theory that innervational exercises are useless in advanced age, and we have successfully overcome this type of convergence insufficiency in presbyopes up to the age of 63.

True Convergence Insufficiency is to be treated with prism base OUT, exercises.

The second type of convergence insufficiency is found principally among esophores of adult age. Frequently we encounter these cases among those in whom the phoria test shows "Orthorphoria." Very rarely, a case of this type presents itself with a low exophoria at distance.

The trouble is exhaustion, due to an uncorrected hyperopia, and the effort that is constantly made to compensate for the structural error. Here we have to disclose and correct in full the latent hyperopia, a thing that is easy to say and difficult of accomplishment.

We must remember that a "Latent Hyperopia" is due entirely to a close association of convergence and accommodation, the control of the voluntary function of convergence over the involuntary function of accommodation. We cannot relax the accommodation and disclose the latent hyperopia, until we first relax the convergence and dissociate it from its control over the accommodation.

This may be accomplished by the use of exercises with prisms base IN, which inhibit the convergence, and by the constant wearing of weak base In prisms.

To give such cases exercises with base Out prisms will only further innervate the convergence, more closely associate it with the accommodation. The patient will not improve, as a rule, or if there is a little improvement at first it will only be temporary, and "his last condition will be worse than his first."

Adduction in esophores is always weak, hence, many careless refractionists will diagnose the case of insufficiency because of "weak adduction." The adduction reserve is low because of exhaustion. Get on enough plus, and you will find the adduction reserve has automatically increased without special attention.

We must be extremely careful in differential diagnosis. Here are two distinct types, similar in aspect, but radically opposed in their origin. One is to be treated with Base In prisms, the other with Base Out prisms.

It is a perfectly safe rule to never take the adduction of the esophore or of the myope, and to never give them exercises with base Out prisms. Much trouble and distress can be avoided by keeping that simple rule in mind.

The third type of convergence insufficiency is one that we should leave severely alone and turn the patient over to some other specialist. This is the imbalance and loss of control due to toxemia or hysteria. Persons suffering from high blood pressure, infected teeth, sinuses, tonsils, etc., affections of the gall bladder, certain diseases of the ductless glands, some types of melancholia or other hysteria, will show convergence insufficiencies and other binocular imbalances. Nothing can be done with lenses and prisms until the disease is cured.

ABSTRACT DEPARTMENT

Optometric and ophthalmic Journal articles and reprints to be abstracted should be sent to Dr. G. L. DuPlessis, 209 Yeates Building, Minneapolis, Minnesota. Only papers of interest to optometrists will be reviewed in this department.

Relation of Headache to Single Binocular Vision and Functional Monocularity. Snell, A. C. Archives of Ophthalmology, Vol. 51, No. 1.

Snell describes a survey made of some 1010 cases of partial or complete functional monocularity, with particular reference to the symptom, headache.

These monocular cases he naturally divided into four groups: (1) The one-eyed; (II) The anisometropic; (III) The amblyopic; (IV) The strabismic. The first group contains all those cases which had lost one eye, considering only those in which the monocularity had existed for five years or more, and those having only one good eye, the other eye having an acuity of less than 10/250; the second group includes those cases of anisometropia in which binocular single vision was not present or in actual use, also a limited number of cases presenting a very marked dominance of one eye although in these latter cases single binocular

vision was present and visual acuity was standard in each eye; the third group includes all cases of monocular amblyopia; the fourth group includes all cases of strabismus, both convergent and divergent, constant or intermittent.

For the survey, Snell classifies Headaches in two forms only, the severe or habitual and the mild or occasional. The results of the survey are as follows:

Group (1). The One-eyed or the Complete Monocular Group. In this group there are 96 cases. Of these, 30 had been blind in one eye for five to 20 years; 40 had been blind in one eye for 20 to 30 years; and 26 had been blind for 40 years or more. Headache of a severe or habitual type was found in only two cases. One case had suffered headache for a period of 20 years, and the other for 45 years. Six cases gave a history of an occasional or mild headache. Therefore only 2 per cent of the absolute monocular patients showed habitual or severe headache, and 6.2 per cent occasional or mild headache, or a total of 8.3 per cent having any form of headache. In this group, there were eight cases which gave a history of severe or habitual headache before losing an eye, and a complete absence of all headache after the loss of an eye.

Group (II). The Anisometropic Cases. In this group are included two classes of cases: First, those of unequal vision (anisopia) due to a high degree of anisometropia so that only one eye was functioning with good central visual acuity; while the other, although having a possible standard visual acuity with proper glasses, did not or could not adapt itself to the use of the correction for that eye having the greater refractive error. Generally there was a difference in the spherical correction of the two eyes of more than four diopters. Second, those with one very dominant eye but with equal vision (isopia), the monocular dominance being determined by the winking test of Rider and because of an habitual desire or habit almost constantly to close one and the same eye.

In this group there are 120 cases of which 93 had anisopia and 27 isopia. Of the former 5 or 5.3 per cent had severe or habitual headache, and 6 or 6.4 per cent occasional or mild headache; and of the latter none had severe or habitual headache, and 1 or 4 per cent had mild or occasional headache. Taking the group as a whole and including both classes of headache, the total percentage of headache was found to be 11.4 per cent.

Group (III). The Amblyopic Cases. This group includes all cases of monocular amblyopia. These cases were divided into four classes, depending on the visual acuity of the amblyopic eye. The best vision with correcting glasses was taken in every case and the question of cephalgia was considered with the use of correcting glasses. In each case are included all cases with vision in the amblyopic eye as follows (vision in the non-amblyopic eye with glasses being 20/20 or better): Class A, 20/30 to 20/40; class B, 20/50 to 20/65; class C, 20/80 to 20/160; class D, 20/200 to 10/250. In class A there are 120 cases. Of these, 10 or 8.3 per cent had severe or habitual headache and 24 or 20 per cent had slight or occasional headache. In class B there were 122 cases. Of these 4 or 3.2 per cent had severe or habitual headache and 14 or 11.6 per cent had occasional or mild headache. In class C there were 119 cases. Of these 8 or 6.7 per cent had severe or habitual headache and 10 or 8.3 per cent had mild or occasional headache. In class D there were 185 cases. Of these 18 or 10 per cent had severe or habitual headache and 23 or 12 per cent had mild or occasional headache. In comparing the classes of headache in this group, Snell finds that the percentage of headache, considering both classes of headache together, show a proportionate decrease with the decrease of visual acuity in the amblyopic eye, except in class D, where the total percentage of headache considerably increased. The percentage for each class was: A, 30 per cent; B, 15 per cent; C, 14 per cent, and D, 24 per cent. However, he had included in Class D, eight cases of migraine associated with severe headache. Had these cases been omitted the percentage in this class would have been 17 instead of 24. The total percentage of headache for all the classes in this group is 20.1 per cent.

Group (IV). The Strabismic Cases. In considering all forms of strabismus

together the survey disclosed, that out of a total of 248 cases 24 or 10 per cent had severe or habitual headache, and 32 or 13 per cent had occasional or mild headache, making a total for all forms of headache of 22.6 per cent for the strabismus cases.

Considering all four groups together for the purpose of comparing the frequency of headache we find that group 1 (absolute monocularity) shows the lowest percentage of headache, only 2 per cent having habitual or severe headache. Then comes group II, in which there was functional suppression of single binocular vision (cases of high anisometropia) with 4.1 per cent of habitual or severe headache. Next in order follows group III (amblyopia) 8 per cent, and group IV (strabismus), 10 per cent with habitual or severe headache.

Considering both classes of headache, the habitual or severe and the occasional or slight together, the percentages are: For group I, 8.3 per cent; for group II, 11.4 per cent; for group III, 20.1 per cent; and for group IV, 22.6 per cent. Thus we find that there was a proportionate smaller percentage of headache in proportion to the greater degree of completeness of monocularity.

As a result of these figures Snell reaches the following conclusions: That, an explanation for the infrequency of headache in the monocular patient as compared with the patient employing single binocular vision is found in the fact that the former, because of his monocularity, must experience less nervous or brain fatigue, the normal monocular visual act being less complex, because of the elimination of the fusion sense and of coordinate muscular adjustment, which are necessary in maintaining single binocular vision. T. O. B.

Our Own and Our Cousins Eyes. T. H. Shastid. American Journal of Physiological Optics, Vol. 7, No. 2, pp. 167-206. 1926.

In a sketchy, pleasing manner, Shastid describes the evolution of the Eye, starting with the microscopic bits of protoplasm, the ameba, where the whole body is sensitive to light, and on through the Euglena viridis with its single small unprotected rose colored **spot** of sensitive pigment "eye" placed below its mouth, this so called eye being responsive to both light and heat, and on to the Capitellidae, where the sensitive sopt of pigment is placed, for sake of protection, at the bottom of a depression or orbit. He next takes up the building of a cornea as now found in the snail called Limax maximus, to protect this pigment and then describes the oncoming of the lens system, first extremely simple, to be sure, and later to the more complex visual systems as found in men. The dual or compound visual systems of insects, and the telescopic vision of birds are touched upon and the development from merely a light sense to a steroscopic binocular system of sight is traced.

He describes the development of eyelids, first in fish and later in amphibians and says: "I am speaking of eyelids, I shall have to digress for a moment to the eyes of men, in order to bring out clearly the importance of eyelids. This importance is due to the need for retinal rest. Retinal rest, in man is secured chiefly in two ways: (1) by motion blindness and (2) by involuntary winking. Let us first consider motion blindness.

"Whenever our eyes are in motion, they are stone blind, excepting only when they move without changing the point of fixation. Astounding as is this fact, it is scarcely ever borne in mind, even by opthalmologists. Yet any one can easily convince himself of the truth of the statement. Let him stand before a mirror, and look at the image of one of his eyes. Let him look first at the right side of that eye, then at the left side of the same eye, and then back again. Never, so long as he lives, will he see his eye in motion. The reason is that, just as soon as an eye begins to move, it is blind. We are never conscious of the blind interval, chiefly because the picture, which is last seen before the eye begins moving, persists in the sight center of the brain and thus laps over the interval during which the retina is blind. But the chief fact is that the retina, by means of its motion blindness, gets minute intervals of rest with very great frequency all through our waking hours. In this way, too, the blurry and useless pictures which we should receive if the eyes saw while in motion are avoided.

"But there is yet another way in which retinal rest is secured: namely, by the involuntary winking of the lids. From three to six times a minute this involuntary winking takes place, and it very much adds to the quantity of rest which the retina receives.

"There are other uses of eyelids: protection against injuries by foreign bodies and from other traumata; the frequent spreading of the tear in a thin layer across the front of the eye, to keep the eye moist and bright; then, too, the moving of the tear on to the mouth of the tear duct, which begins at the inner angle of the eye and runs down into the nose.

"In some diseases retinal rest is greatly interferred with; for example, in exphthalmic goitre. In this affection winking becomes less frequent, or disappears entirely. Then, too, the eyeballs, being strongly protruded and rather tightly fixed, are more or less motionless, and so the retinal rest from "motion blindness" is also practically abolished. Hence, in this disease, the poor retinas are practically worn out from lack of rest. Bandaging the eyes, in these cases, does more than prevent ulceration of the cornea: it also provides sufficient rest for the exhausted retinas. In paralysis agitans, facial paralysis, and opthalmoplegia externa, we have a similar situation, and one which, as an element in the case, is almost universally ignored. And, in fact, in many otherwise unexplainable cases of asthenopia, we find, if we carefully investigate, that the cause is some kind of interference with retinal rest. Some hysteropes wink only once a minute, instead of three to six times, and so on. I have made numerous investigations into this subject (not yet published) and I confidently recommend the topic of "retinal rest" to the oncoming generation of opthalmologists as one of the most promising for original investigation of any which I know."

He then deals with the eyes of primates bringing out another interesting phase regarding the care of the eyes under certain conditions, as follows:

"A few words, now, about the primates—monkeys, apes and men. The eyes of the galago (one of the lowest monkeys, or pro-simiae) are very instructive indeed. These eyes have retinitis pigmentosa normally. All the symptoms are present: nyctalopia, poor vascularization of optic nerve and retina, the grains of snuff-like pigment, scattered thickest in the peripheral part of the eye-ground. The galago almost certainly occupies a conspicious place in man's pedigree, so that it is more than likely that retinitis pigmentosa, in the human being, is simply a degeneration, or reversion to an old type of eye. I have heard ophthalmologists say that retinitis pigmentosa is almost always the result of inherited syphilis. I cannot agree, further than that I admit that, in inherited syphilis, there is a strong tendency toward reversions of various sorts. There is the same tendency in the children of consanguineous marriages, and in twins and triplets from marriages of any sort or kind.

"Zoologists have found that the galago is a dark-loving animal, and that, if it be forced to dwell in strong light, its sight rapidly diminishes until, in a few years, the vision is entirely gone, whereas, if the animal be allowed to continue living in the low illumination which is normal for it, it will keep the sight with which it was born. Moved by this fact, and believing retinitis pigmentosa to be a reversion to this old type of eye, I have long caused my patients suffering from retinitis pigmentosa to avoid all strong light with the utmost care. I have also had each and all of them wear some of our modern absorptive lenses, and it has seemed to me that the progress of the disease has often been held in check by so doing. In some cases there was even a very decided improvement. I implore all ophthalmologists to keep their retinitis pigmentosa patients, in one way or another, out of strong light."

The paper closes with a short prophecy, in which Shastid says: "It is a well known fact that the human eye is at rest when gazing at a distance, but very hard at work (especially at work focusing) when looking in the near. This is the exact opposite of the situation in the case of many birds and of all fishes. And, until two or three generations ago, it was, no doubt, a very great advantage for man to have eyes which are at rest when looking in the distance, for man, during nearly all his time, was engaged in looking far away, hunting for something to kill and eat. In the last three generations, however, book education

has become almost universal, and now man is not so much a distance-looking, as a near-looking, animal. He reads, writes, repairs watches, cuts gems, examines pictures, and so forth. Nature has sought valiantly to help his eyes adjust themselves to the new set of conditions, and this she has done in two very different ways—one bad, one good. The bad way has been by making him near-sighted. The near-sighted eye is at rest when looking at near objects. Moreover, it sees poorly at a distance (often at near also) except when fitted with lenses. And it not infrequently goes blind from internal hemorrhage and detachment of the sensitive plate, or retina. The good way in which Nature is trying to help man in his modern conditions of existence is simply by strengthening his focusing apparatus for near points: chiefly, that is, by improving the elasticity of the lens. It is, I am firmly convinced, the normal-sighted eye, supplied with a very strongly developed focusing apparatus for near objects, which will survive the competition between the two kinds of eyes.

"Later, the falciform process, or something similar to it, may be re-developed. Man will then have 'negative' accomodation. I also feel that, in the course of generations, man's 'field' of view will become smaller and smaller. This, because his need of a wide field is growing less and less. This I say with full realization that we live in an age of automobiles, and that these vehicles render desirable a wide field of view. The automobile is probably a very transitory phenomenon. I even believe that, in the course of countless ages, the two human eyes will come closer and closer together, the bridge of the nose will further diminish and sink (just as the animal snout, in the man's line of descent, has been doing for vast aeons of time) and, finally, man's two eyes will again become one—just one large, central, cyclopean eye. It is likely that the merely servient (left) eye will shrink away (as the pineal eye has already done) so that the right eye will become the cyclopean. Certain it is that the left eye, even today, is being used less and less continually. Man's binocular and stereoscopic visions are being destroyed. That is the price he pays for his speech center. The great cyclopean eye, however, will regain stereoscopic vision by developing two maculae in the one eye, just in the fashion in which many birds have stereoscopic vision in each eye now. Although the field of view will then be narrower than now, the eye will probably be microscopic and telescopic; it will be exceedingly acute for colors, for motion, and for form; and, finally, most important of all, it will probably be able to perceive as light many forms of energy which now produce in human eyes no sort or kind of perception.

"At all events, the law of evolution is as interminable as the law of gravitation. I may be mistaken in my prophecy of the exact changes which are yet to occur in the human eye, but, on one point, surely, it is impossible to be mistaken. That point is that there will be change. The entire spiritual, intellectual and physical universes in which man lives will change. And man himself, his eyes included, will inevitably change with them."

T. O. B.

Vision in Light of Reduced Intensity. Edmund, C. & Moller, U. H. Archives of Ophthalmology. Nov. 1925.

The authors had made at the specifications of Tscherning photometric glasses that transmit light one tenth the amount transmitted by clear glass or in multiples thereof. Thus a glass of *n* photoptry transmits 1/10 (exponent *n*) and the glasses add up similarly to dioptric lenses. These obscurants were made by placing a film of gelatine dyed with anilin between two pieces of glass. Curves were plotted showing the dependence of the visual power and the power of distinction upon brightness. This was found to vary with colors as well as in pathological cases. The range of adaptation of an eye is measured by the strongest obscurant through which an eye is able to percieve the flame of a standard candle at a distance of 50 cm. The degree of brightness of an object is determined by the strongest obscurant through which an eye maximally adapted, *i.e.*, after having worn a number 10 obscurant for half an hour, is just able to see; while the

unit of brightness is the faintest light a maximally adapted eye is able to see. Special optometers were constructed with large letters so as not to bring into play visual acuity and were uniformly illuminated to C.=8.

The article itself is suggestive of other uses of these photometric glasses in optometric practice.

G. L. DuP.

BOOK NOTICES

New Books for review should be sent to Dr. E. O. Fjelstad, 209 Yeates Building, Minneapolis, Minnesota. Only Books of such nature as to be of interest to optometrists will be used in this department. Optometric and Ophthalmic publications that have been issued in the past and which are still procurable through their publishers will also be reviewed, from time to time, as space permits.

HELMHOLTZ' PHYSIOLOGICAL OPTICS. Translated from the Third German Edition. Edited by **James P. Southall,** Profession of Physics in Columbia University. Volume III. The Perceptions of Vision. pp. 748. 6 plates, and 78 illustrations. Published by the Optical Society of America. Printed by the Geo. Banta Publishing Co., 1926. For reviews of previous volumes in this set, see this Journal, Vol. I., No. 10, p. 253 and Vol. II., No. 4, p. 108.

With this volume the publication of the Helmholtz Treatise in English is completed, and to the editor, his ssistants and to the Optical Society are due the thanks, and congratulations of all English speaking students of Physiological Optics, on the excellence of their work. This volume is larger than either of its predecessors because the subject matter is of the kind which has been largely written and studied upon, and in bringing it up to date more space was needed for its presentation.

The first chapter is well worth careful analysis by scientist or layman, physician, opthalmologist or optometrist. The translators have here reverted to the style of Helmholtz, that of the first person, and the reader can feel that he is being given a personal lecture by this great master of his subject. We feel that this volume is by far the most interesting of the three and one can find much of personal advantage in it.

The chapter headings are; No. 26, Concerning the Perceptions in General. No. 27, Movements of the Eye. No. 28, The Monocular Field of Vision. No. 29, The Direction of Vision. No. 30, Perception of Depth. No. 31, Binocular Double Vision. No. 32, Rivalry Between the Visual Globes. No. 33, Review of the Theories.

Von Kries has notes following each chapter, except the first and last. Chapters 30 and 32 are new; 92 pages of appendices by von Kries; a chapter "On the Theory of Binocular Instruments"of 36 pages; 16 pages for the "Practical Bibliography." 1911-1925; 27 pages for the index of subjects and and of authors covering all three volumes and two pages of corrigenda of the preceding volumes complete the work.

We do not feel capable of severely criticizing the translation, not being familiar with the German editions as some reviewers have done, as we are cognizant of the multiplicity of meanings a work may have in any language. We are thankful to have such a wonderful study and reference work on physiologic optics, that we are more than willing to overlook the typographical errors, the correction of which are in the corrigenda.

We urge every reader who can, to get a set of this translation. It can not be used as a text book, to be read through in a certain period, as the subject matter requires the reading of a portion here and a portion there. It is purely a reference work for the enlightment of the reader on various phases of optics and its many sided phases should aid the conscientious optometrist to a higher regard of the adapatibility and aspects of the eye.

E. O. F.

ANNOTATIONS

EDUCATIONAL PROGRAM

Twenty-ninth Annual Convention of the A. O. A. at San Francisco, June 28th to July 3rd

Professor Frederic A. Woll of the College of the City of New York and on the Optometric Staff of Columbia University of New York City, will be one of the principal speakers at the coming convention. Professor Woll will give two lectures, the first on his special subject of "Hygiene," the second on "Ocular Tissues from the Standpoint of Cell Structure." Those who have heard Professor Woll know his excellence in matters such as these and are looking forward to hearing him again.

Another well-known optometric educator in the person of Dr. Charles Sheard of the Mayo Clinic of Rochester, Minn., will also appear as a lecturer at the convention. Dr. Sheard's first talk will be on "Subjective Skiametry"—a subject he has been interested in for years and one mentioned of late in some detail in his quarterly magazine, The American Journal of Physiological Optics. His second subject will be "Light and Life."

It is several years since we have had the honor and privilege of having Dr. Sheard at one of our conventions and his coming is looked forward to with great interest.

Dr. Morgan C. Davies of the Optometry Department of the Ohio State University will give two addresses. Dr. Davies is well known throughout the central west as an interesting and forceful speaker. His subject will be "Crossed Eyes," the lecture being given in two portions.

Dr. E. C. Bull, ophthalmologist of Pasadena, will speak on the "History of Spectacles," having a major portion of his collection of historical spectacles with him.

Dr. Harry E. Fuog of the Los Angeles School of Optometry will also appear on the program. Dr. Fuog is very well known in the west as an interesting lecturer. He will give two talks, the first being on "Optometric Interpretation of Fundus Anomalies," the second, "Physiological Correction of Ocular Anomalies."

The Optometry School at the University of California will furnish four talks. Three of these will be by Dr. Sheard and the fourth by Professor Minor, who will speak on "The Demonstration of Electronic Theory of Energy Propagation from X-ray to Radio Waves." These talks will be held at Le Conte Hall on the campus.

Each registrant will receive a printed copy of each lecture in such form as will be available for future reference and binding.

C. C. KOCH.

SPECIAL REPORTS

"QUOD ERAT DEMONSTRANDUM"

"The time has come," the Walrus said,
"To talk of many things;
Of shoes and ships and sealing wax,
And cabbages and kings."

Ridiculous as it sounds, the small town optometrist **does** occasionally sit down and think. This is written to explain in part—what he sometimes thinks about.

I am unable to parade my thoughts with the skill and dignity of some of my lordly "cliff-dweller" brothers who practice in the large cities, with offices on the steenth floor of a very select office building. However, if they will overlook my literary deficiencies and bear with fortitude what follows, I'll excuse their desire to bawl for the gendarmes and have me confined for repeated use of the perpendicular pronoun. "Fords rush in where Packards fear to tread." It is **my** story and I am telling it. As for criticism, to quote my good friend Mons. M. Dupre, "I care not one leetle damn."

I expect to talk of many things generally and, particularly, on the rather shop-worn, but important, topic of store vs. office. At the outset I wish to say that I am convinced that the majority of optometrists are "fishing for sardines when there are whales to be hooked." This because of the fact that this majority is practising (?) in optical shops, jewelry stores, department stores, bargain stores or poorly located and equipped offices—anything but a properly equipped and strictly professional office.

Most of us remember what we used to write at the end of our geometry problems in high school—when we were fortunate enough to get them right—"Q. E. D."—quod erat demonstrandum—which was to be proved. My efforts have, I believe, enabled me to write at the end of the store or office problem the desired Q. E. D. Possibly the large cities will produce some exceptions to prove my plan wrong. Very well! Let the exception prove the rule.

The vast majority of optometrists are **not** practising in the cities but in the smaller towns. Close to nature, and what we think to be of greater importance, very, very close to the people of their community. There is a much closer relationship between the country practitioner and his patients than can ever exist in an extensive city practice. This being true, the average practitioner must "deliver the goods" if he is to prosper. How best can we acquire this much desired prosperity? In store or office? We say, **"In a Well Equipped Office!"** You retort, **"Prove it!"** All right! Here goes!

Let us consider a few pertinent facts. We may have proper professional education, a high conception of our duty to our patients and profession, but we cannot escape the fact that, primarily, we are in practice to make a living; in other words, for financial reward or gain. We do not by this mean the ekeing out of a bare existence but a fair return on our investment in education and equipment, some pleasure from life and a competence for old age. It is right that we should have this.

Does the average store optometrist acquire a modicum of these rightfully desired rewards? He does not! Store rent is eating his soul out and leaving scant, if any, profits and he is afraid to move into an office amid strictly professional surroundings. Afraid he will lose. What has he got that is worth a hoot? In most cases neither prestige or practice! Nothing! **He Has Everything to Gain!** I dared and won and am trying to tell you how to do the same. The more men who go into strictly professional offices the more stores that will go out of business. They cannot compete with the competent and well equipped man in an office.

PLATE I. COMBINED OFFICE AND RESIDENCE.

No paper written for optometric consumption today is considered perfect (by some at least) unless it takes a "slam" at the oculist. Yes, sir! We aim to please! The more optometrists who move into offices the more consultants will desert oculists. Why? Because the average self-styled oculist cannot afford and does not know how —probably never will—to equip an office. He has gone into refraction because it looked like easy money to him when he was crowded to the wall by pressure from all sides. Thanks to

modern medicine people are learning to care for themselves better. There are mind and bone-racking specialists galore. Psychoanalysis and the chiropractice thrust, yea, even the soul-cure has taken money out of the medico's pocket. He has to get it somehow, and the little old cheap trial case, a fly specked wall card, a tallow dip and vest pocket mirror—plus the visit to the sign painter after dusk—makes him a specialist (?). He don't know a darn thing about it and **knows** it, but the public don't. The great American motto being, "let us then be up and doing, with a heart for any fake," he gets away with it. The store optometrist furnishes grist for his mill, but the up-to-date office optometrist puts him in the hay for keeps.

The properly educated oculist with a well equipped office **commands** my respect and admiration and we find him intelligently co-operating with the competent optometrist. We need him and he needs us. Having one time been a pill polisher I admit that I am a bit biased. When ill I want no high-falutin theosophy or chiropractic tick-tack on my spine. I want the good old fashioned medico of the regular school —scalpel, calomel, jalap and all. I like, admire and respect the practitioner of medicine but he has not, without proper optometric education, any more business in specs than I have in pills.

Assuming that you, who have been educated for a profession, the art and science of optometry, have at least seen the light and moved out of a store and into an office, what then? First—Build up a reference library and **use it.** Keep it up to date. Cull out the obsolete books each year or two and replace them with the latest and best. My reference library represents an investment of over a thousand dollars but I dare not be without it. To succeed you must study. I have a minimum set of five hours a week for undisturbed study. Very often I spend much more time with my books. As a leader and food for thought—"Do you own the American Encyclopedia of Ophthalmology?" It is worth many, many times the price you pay for it. Second—Equip your office with proper and necessary instruments and become proficient in using them. If you buy equipment for display you become what Sheard calls "a quack behind a mahogany breastworks," and the public is soon on to you.

While it may be possible to refract with a few damaged and broken spec lenses and a broken mirror it is wholly inexcusable in this day and age when so many valuable instruments are available. Personally, I do not like most of the so-called equipment units on the market today. To me they are somewhat like a badly decorated Christmas tree. I have never seen one that I could work with conveniently and comfortably. However, the type and kind of instrumentation may be governed by personal likes and dislikes. The irreducible minimum should be a good operating chair, phorometer or phoroptometer, ophthalmometer, electrically lighted and rheostatically controlled from the chair test chart, transilluminator, skiascope, ophthalmoscope, test case and the best trial frame obtainable. I have three ophthalmoscopes so that if one plays out I have another one to fall back on. I am lost without one. Some few years ago (when we kept two on hand) when one went out of commission, and the day I mailed it to the manufacturer for repairs the second one quit working, I called on a supposedly up-to-date optometrist and asked him to loan me one of his until mine came back. Imagine my surprise when, after a five minute search, he handed me a perfectly new instrument saying, "you're welcome to this as I never use the D——— thing." Yes, Bill he ran an "optical shop." Three years ago the sheriff put a plaster on his door and closed him up.

And now a word about the old trial case and trial frame. Today it has but a limited use. When we have finished our work along the instrumental route we can pick out the prescription lenses, fit them into the trial frame and let the patient have a "look see" and that is the last little romance. Go into an optical shop, jeweler-optometrists, oculists or even in the average "up-stairs" optometrists office and the old trial frame sticks out like a sore thumb. What is there to distinguish the office practitioner from any of these geeks if he is minus proper instrumentation and works in the same old way? Nuthin'! The oculist put on

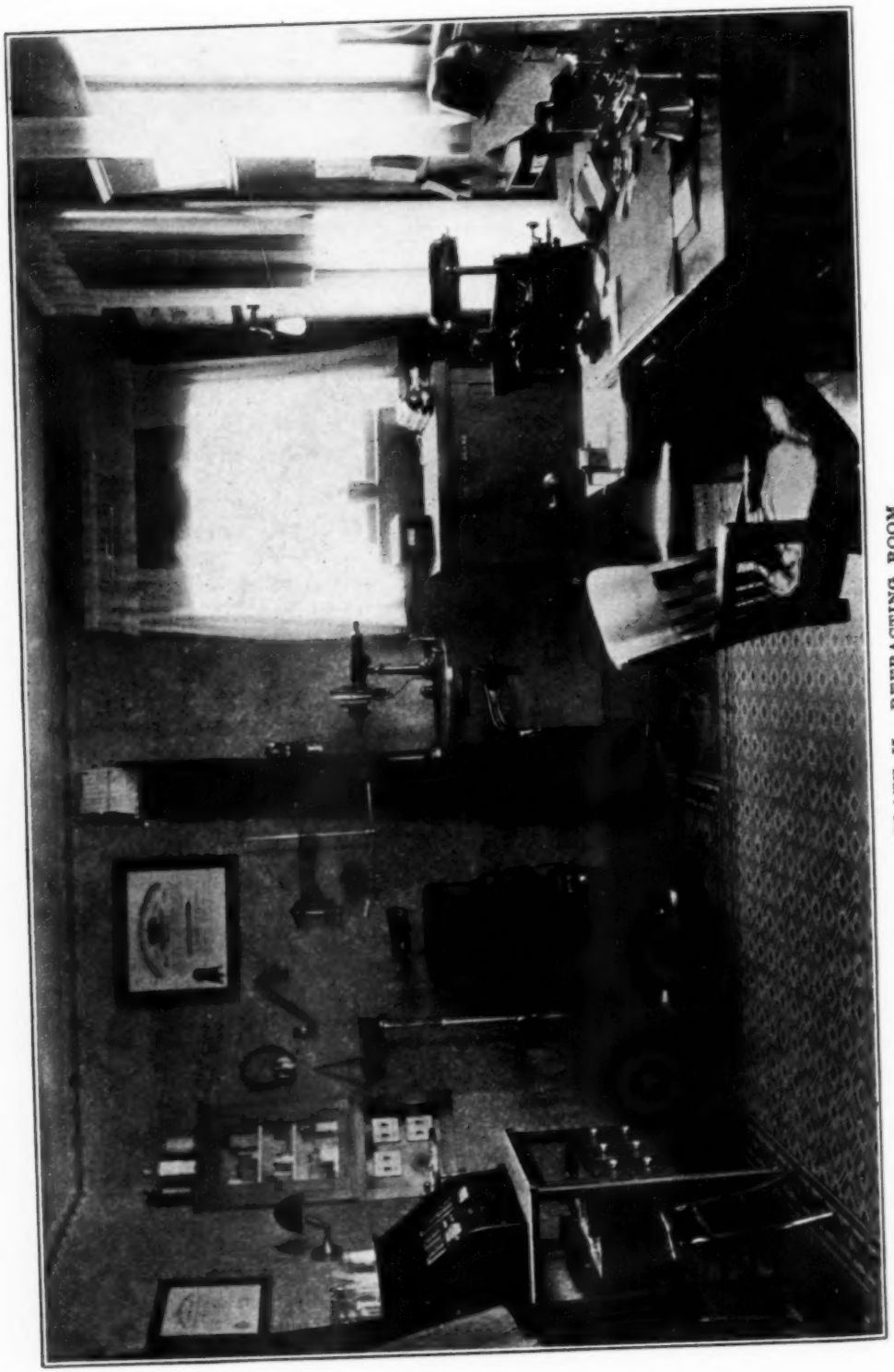

PLATE II. REFRACTING ROOM.

the trial frame, the store man puts on the trial frame, the department store man an old trial frame and a lot of other ducks an older trial frame. Whatinell will distinguish one of these birds from the other? **Instrumentation will!**

Give the patient who comes to your office an "eyeful." Many a patient has said to me, "Why do you use this instrument?" "What is this for?" "I never had that done before!" "Your examination is the most thorough I've ever had" When one comes to you all swelled up by always having their work done by the great eye specialist Dr. Ahem I. Fittem of Bingo, and sees instruments, *in use*, that they never even saw before in the g-u-r-r-e-a-t specialist's office, you score a bulls-eye. They **know** your examination is worth more and, if you are proficient, will not only wear the glasses you prescribe with great comfort but will send many of their friends to you.

If you hired a carpenter to build a house for you, and he showed up on the lot with nothing but a hammer and a saw, what would you do? **You know!**

Ten years ago I disposed of my interests in Philadelphia and moved to Bloomsburg, where I opened up a well equipped office in a combined apartment and office building, sharing a reception room with a dentist. The day that I opened, ready for work, I was three hundred and sixty dollars in debt. I plugged along in this location for six years, each year showing a gratifying increase in practice.

In March of the seventh year I bought the property in which I am now located, making it over into a combined office and residence. Total expense of fifteen thousand dollars. Today I have an office and residence that I am proud of, a rapidly growing practice and, a $4,500.00 mortgage. The latter worrying me not at all as I know that I can easily take care of it. The net income from last year would pay it off and leave enough over to live comfortably on.

Today it is impossible to secure a store location in Bloomsburg for a rental of less than $75.00 a month and those obtainable at that figure would be on some side street. A main street location can be safely put at a minimum rental of $100.00 per month and very, very few to be had at that figure. My office over-head for the year 1925 was exactly $432.00 or a monthly rental, including heat, light, phone, etc., of $36.00 a month. Some difference! What? We have a main street location on a trolley line connecting several adjoining towns and practically in the center of the town. Some of you chaps who are practicing in store-rooms think it over.

Our books carry nearly four thousand "live" Rx records and we have a pleasant medical and surgical connection with the eye, ear, nose and throat department of one of the best equipped two hundred bed hospitals in the United States. We work six or seven hours a day which gives us ample time for rest and recreation, take six weeks vacation in the summer, and thoroughly enjoy living and practicing under these conditions.

In conclusion, of the "Doubting Thomases," married to a store practice, I inquire, "Does a strictly professional office practice pay, and if so, is it desirable?" While you think up the answer I am going for a ride in my new Chrysler. Yes, Bill! It's paid for!

EARL J. DEANE.
319 East Street,
Bloomsberg, Pennsylvania.

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DR. JACK I. KURTZ, Room 209 Yeates Building, Minneapolis, Minnesota.

The Journal has no objection to the reprinting by other magazines of any of its articles, provided such reprints are properly credited to the American Journal of Optometry.

THE FUTURE

Every few days something is said, or written, or found out through the Material Supply Houses, pointing to what is an unquestionable fact that "doctors are turning into oculists, overnight," and that competition of these men in the refractive field is growing. Someone tells me that oculists are now buying optometric instruments very rapidly, that they now constitute one of the best selling fields for instrument makers. A friend in Chicago writes, that oculists are increasing at a surprising rate, and another dear friend in Buffalo states that these men have spent several thousand dollars in some sort of a campaign of edication, of themselves or the public, I know not which. Dr. Folsom tells us that even good old birth-right state, Vermont, is well covered by them. All right, we welcome them if we must, for truly, "a merry time will be had by all."

Joshing aside, however, there is another aspect to the situation which we can read as we run. Medical men themselves tell us that the least possible money and the least possible time allowing them to get into practice is ten thousand dollars and ten years work, which puts a man up into the thirty-five year-old zone, on an average. But people are not taking medicines as they once did. I personally know family after family, dozens, probably scores of them, where in answer to my question as to who was their family physician they have stated that they had no such person, that they had not been to a doctor for several years, that there was no one to whom I could refer them. It is a fact that less patent medicines are taken, less doctoring is going on, than a generation ago. Osteopaths and some other "paths" have undoubtedly cut into practice in considerable measure, but the basic facts are that we eat more sanely, dress more naturally, drink less booze, take better care of our bodies, sleep with more air, and generally "coddle" ourselves less than some of our immediate ancestors did. It is a fact that the country physician is disappearing, due in large measure to lack of support. But it is a still further fact that physicians are not being educated in as great numbers as they were a generation ago, and there is coming to be a visible shortage in number even in the cities.

Many physicians have gone in for specialization, since this seems to be an age of this phase, and they feel that they can obtain more as well as larger fees in this field. Undoubtedly the younger generation can, but not

so with the older men. We find that specialization of the older physicians takes the form of Optometry, since they can become oculists without study, or at least can acquire what they seem to think may be needed, by a few home books, or a short course of instruction from some other nearby physician who has acquired this title. Their experience they expect to acquire in the same manner that they obtained in the medical field many years ago. This is perfectly true, indeed it is emphatically true, that they will get experience by practice, *but what experience, what practice!*

The day has passed when the physician-neo-oculist had but to compete with a spec-fitter who was also a jeweler. Undoubtedly there is considerable of this easy competition yet in certain localities, but the real optometrist is a hard ticket to bump against today. It is not difficult to find communities where so-called oculists equal or out-number the optometrists, but this manner of classification is manifestly unfair. Counting noses this way is like counting optometrists by the state registers. The real optometrists in most states average something like one-fourth to one-third the registered men, and oculists, who are more likely than not recent acquisitions in that fold, are even less refractionists than our out-society men.

Physicians believe that optometrists make enormous profits, have an easy time of it, and have needed less education by far than the medical man. They reason that here is an easy and open field for them. Medical men have been "sold" certain instruments which would make this work easy, accurate, and would bring in both fame and fortune. They are among the best buyers of optometric equipment just now. But instruments don't make knowledge, the equipment does not bring experience, and the mathematical field is far outside the natural sphere of the physician. Moreover the optometrist must be somewhat of a skilled mechanic in a number of directions, else he will largely fail of his proper attainment. But this type is a long way from the atmosphere of the past, present, or future medical practitioner. If he hires all this work done he will have some surprising bills to pay.

Moreover it takes years to acquire technique in refraction, even though one practices only by old subjective methods. To one who works entirely alone in this branch, and upon a scattered clientele, it would require a full generation to acquire the knack. Knowledge of mathematics, the placement of lenses, prismatic practices, displacements, and a hundred things of even more intricate nature, will very soon discourage 90% of those who lightly trip over into this field. Optometrists love nothing better than to follow an oculist who has "refracted" a case. A very large part of their work is a joke, and even much of that done by men of considerable eminence lacks very essential knowledge of the finesse of the work.

Optometry is finding itself very rapidly. It is true that there is an apparent paucity of new men today, or a lag in the number entering the field. Two factors contribute toward this condition, the dropping off of older men, and the higher standards set up for optometric education. This latter has a damming up effect which will hold back the numbers for a few years until new men graduate. But when they do come out into the field they will so far out-match the neo-oculist in skill that no comparisions will be necessary.

And too;—the modern optometrist who studies, attends clinics and lectures, devoting his time to the advancement of his science, has nothing to fear from the oculists, as he cannot possibly give the service to the public which the optometrist is equipped to give. No man can serve two masters, for medicine and refraction are wholly unlike. One cannot possibly be skilful in both. For a short time there will be an influx of medically trained men into a field which is far outside their ken. We may fuss about it, but we need not worry about the outcome, the race is won before it's begun. Here and there we shall see a medical refractionist who is financially and scientifically successful but they will be rare.

Medical colleges already have a curriculum of extreme length, and they will be unable to extend their courses sufficiently to embrace the mathematical and physics training necessary to turn out refractionists.

Even though the colleges undertook the work students would not care to add two to three extra years to an already over-long course. Moreover, medical students could hardly afford to take shorter medical courses in order to save time for a refractive course. Instead of being medical specialists to whom colleagues could and would refer patients, they would be even less competent than optometrists, naturally failing to command support from their own fraternity.

The income of optometrists is not sufficiently attractive to draw men who must spend ten years and probably much more than $10,000 in the future. They can earn larger fees in less competitive fields.

It is just as well up to a certain point, that there are fewer and fewer registered optometrists, since those who are now carrying on must be more and more competent in order to compete with the medical men who are attempting refraction. It is a process of natural selection in which we all see ourselves taking a very leading part. If medical men buy instruments and equipment we also must equip, and the more apparatus we buy the better for Optometry. Nothing hurts an optometrist in his own community so much as a lack of modern instruments and skill in their use.

It will do Optometry much good to worry about the influx of neo-oculists, for it will put us upon our metal, but if Optometry continues to progress as fast in the next five years as it has in the past five there need be no doubt of the outcome. Medicine will find far more profit in its own field, and will at the same time respect us and our work sufficiently to support us. Who is getting the business in any line of work? Is it the hole-in-wall store, or the clean and progressive place? The old foot-pump dentist, or the modern man with the electric drill, the modern office, and modern methods? How is your favorite tailor, dress-maker, barber, and doctor outfitted? With old stuff that had their day before you were born, or with the latest labor saving devices?

There is one answer to the question of competition, whether this comes from the side of encroachment by medical men, or by someone within our own fold, and that is **Equipment, and more Equipment.** There is a saying that "instruments cost money." On the contrary they cost nothing at all. We agree to pay for them, but long before the bills are settled our patients and consultants have paid us the full price with interest, bonus, profit, commission, and much beside.

Equipment in the proper optometric hands, is, to the patient, the tangible, visible proof of our knowledge, and equipment in our offices becomes the frank admission on our part, of our interest in our patients well being.

F. McF.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

STATE EDITORS

E. B. ALEXANDER, Oklahoma
A. S. ANDERSON, North Dakota
J. F. ANDREAE, Maryland
D. A. KINNEY, Iowa
J. A. LARGE, Minnesota
C. A. PERRIGO, Nebraska

Reports of Society Proceedings in Iowa should be sent to Dr. D. A. Kinney, Charles City; in Maryland to Dr. J. F. Andreae, Baltimore; in Minnesota to Dr. J. A. Large, Winona; in Nebraska to Dr. C. A. Perrigo, Freemont; in North Dakota to Dr. A. S. Anderson, Williston, and in Oklahoma to Dr. E. B. Alexander, Duncan.

NEBRASKA STATE ACTIVITIES

Lincoln Optometrists Organize

The Nebraska Association is going to hold a series of educational meetings throughout the state. All optometrists that are interested should get in touch wih Dr. F. A. Hannis, York, Nebr., chairman of the educational work.

The Omaha Optometric Society held a very interesting meeting in Lincoln, Nebr., May 5th, some twenty Omaha optometrists driving over to Lincoln, where they were met by the Lincoln optometrists and had a dinner at the Lincoln hotel where the meeting was held. The Rotary Quartet of Omaha furnished the music, which was most enjoyable. Dr. Foster of Omaha outlined a legislative program, with the remarks that he couldn't possibly see where a bill that is as important as the optometry bill could be objected to by a single person. Dr. Dean spoke on the Field of Optometry, and our preparedness. This was followed by a general discussion and the forming of a local society in Lincoln. Dr. L. C. Hewitt, president of the State Association, spoke on the importance of organization in optometry.

Officers of the Lincoln society will be elected for the coming year at their next meeting.

Dr. Fred Gonder, Secretary.

OKLAHOMA ASSOCIATION OF OPTOMETRISTS

Official Report

Twenty-First Annual Convention OKLAHOMA CITY

April 19-20-21-22

The convention was opened at 10:00 o'clock, by Dr. J. R. McCrary of Oklahoma City.

President V. E. Bowers introduced Dr. T. N. Batten, Chairman of the Oklahoma County Optometric Society, who delivered the address of welcome. The welcome address was responded to by Dr. Frank H. Robertson, of Blackwell.

President Bowers announced the appointment of the Resolutions Committee as follows: Dr. J. A. Clay, Dr. R. C. Everts, and Dr. C. H. Dillingham.

The President and Secretary made their annual reports, after which the convention adjourned.

The convention convened again at 2:00 o'clock and immediately proceeded with the election of officers for the ensuing year. The results of the election were as follows: President, Dr. H. S. Hannis, Tulsa; First Vice-Pres., Dr. J. A. Clay, Durant; Second Vice-Pres., Dr. Viola Batson, Oklahoma City; Sec'y-Treas., Dr. E. B. Alexander Duncan; Member Executive Comm., Dr. V. E. Bowers, Lawton.

It was voted to recommend, to the Governor, the re-appointment of Dr. E. E. Russell, Altus, on the State Board of Examiners in Optometry.

The retiring President, Dr. V. E. Bowers, Lawton, was selected as the delegate to the National Convention.

By resolution, the convention went on record as heartily endorsing the present administration and policies of the American Optometric Association.

It was voted unanimously, to endorse the re-election of Walter Kimball for a second term, as President of the American Optometric Association.

General business of the Association was discussed and acted upon, after which the business session of the convention was adjourned.

Dr. Walter Kimball, President of the American Optometric Association was honor guest of the Association the second day of the convention. He addressed the convention in the afternoon and was received with a hearty response. Dr. Kimball also talked before the Rotary Club, at their noonday luncheon.

The Board of Directors, of the Association, consisting of newly elected officers and Executive Committee, met the evening of the 20th and appointed the following standing committees: Legislation, Dr. G. T. McVey, Oklahoma City; Publicity, Dr. J. A. Clay, Durant; Education, Dr. W. S. Farmer, Oklahoma City; Law Enforcement, Dr. V. E. Bowers, Lawton.

These committees were instructed to outline their program for the year and be prepared to present same to the Board of Directors, at a meeting which they will hold the first part of June.

DR. E. B. ALEXANDER,
Sec'y.

MINNESOTA STATE BOARD

The Minnesota State Board of Examiners in Optometry will hold its examination on June 10th and 11th, at 9:00 A. M., at the Old State Capitol, St. Paul, Minnesota.

W. H. NORDIN, Opt. D.,
Asst. Secy.

NORTH DAKOTA ASSOCIATION

The twenty-fourth annual convention of the North Dakota Optometric Association will be held at Grand Forks on August 2nd and 3rd. Dr. H. S. McClung, certified clinician of the A. O. A., of Regina, Saskatchewan, will headline the program. Further details of convention plans will be announced later.

A. S. ANDERSON, Opt. D.

ANOTHER GREAT CLINIC FOR OKLAHOMA

Dr. W. S. Farmer, Chairman Dep't of Education

The Oklahoma Association of Optometrists is 21 years old. Every year without an exception progress has been made in some phase or other. Some years legislation, others law enforcement, but for the last few years, the officers have seen the need of two great objectives, 1st, Education of the Optometrists themselves; 2nd, Education of the public, of our great science. In line of these objectives, the Oklahoma Optometrists have enjoyed three wonderful educational post graduate clinics in the past twleve months. In these clinics, we believe we have had the cream of the Optometric scientific world, as our instructors at these lectures.

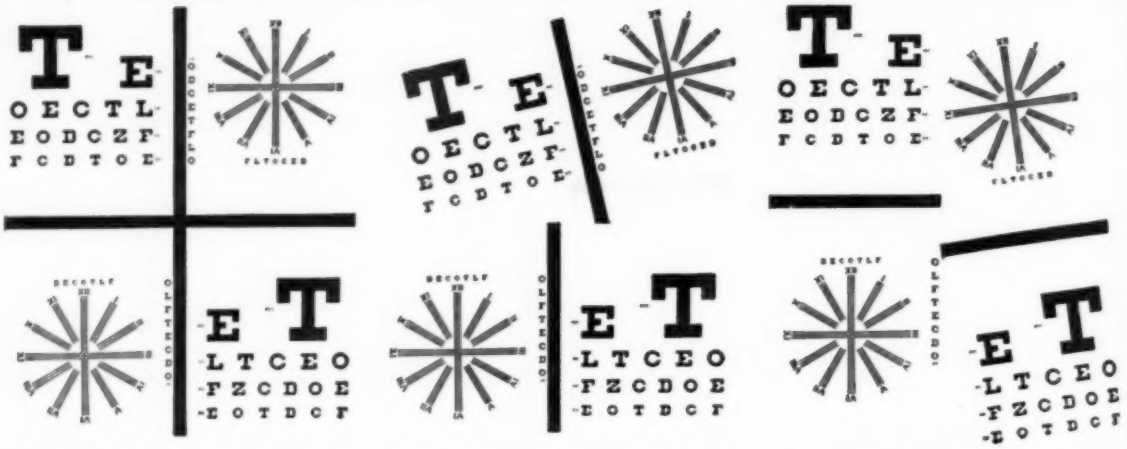
We believe the greatest clinic ever held in Oklahoma was held April 20-21-22, at the Huckins Hotel, under the auspices of the Oklahoma Association of Optometrists, with Dr. R. M. Peckham of Waterbury, Conn., as chief clinician.

We had at our disposal two complete examining units. The American Optical Co. furnished the Professional Unit, and The Riggs Optical Co. furnished the Genothalmic Unit, and also one of the new Kratometers, that was used by Dr. Peckham.

Dr. Peckham is known throughout the Optometric world as the great advocate of the shock exercises for muscular imbalances. With equal propriety, we might acclaim him a great shock to lethargetic Optometrists in his method of dealing with refractive and muscular errors. Dr. Peckham is a true scientist, his reasoning while at times, may be a bit radical, he like others of his kind is constantly looking for the truth, reasoning from cause to effect.

His first day with us was Tuesday, April 20. In the morning he lectured on the

(Continued on page 194)



You get a case that has been the rounds of "all the good specialists in the city"; no glasses have been found that give relief. You seat the patient before a chart like the above and bring the Hemisensory Binoculometer into position: promptly the patient reports conditions as depicted above. You at once recognize it to be esophoria, associated with a great cyclophoria. It is unmistakable, all doubt is thrown to the four winds.

You now turn the instrument to make vertical test; the cyclophoria is again shown, associated with right hyperphoria. Ah! plus lenses **removed** the esophoria but the cyclophoria and the hyperphoria remained unchanged. What should you do? Can you give this patient comfort?

CERTAINLY YOU CAN; the H. B. test has shown you conclusively that the plus lenses remove the esophoria,—**that accommodation and convergence are working in harmony**; all that remains is to correct the hyperphoria with prisms incorporated in the prescription for glasses AND THE CYCLOPHORIA WILL DISAPPEAR,—and your patient will be happy, and so will you.

THE H. B. TEST BRINGS HAPPINESS TO BOTH THE PATIENT AND THE DOCTOR EVERY TIME; order today.

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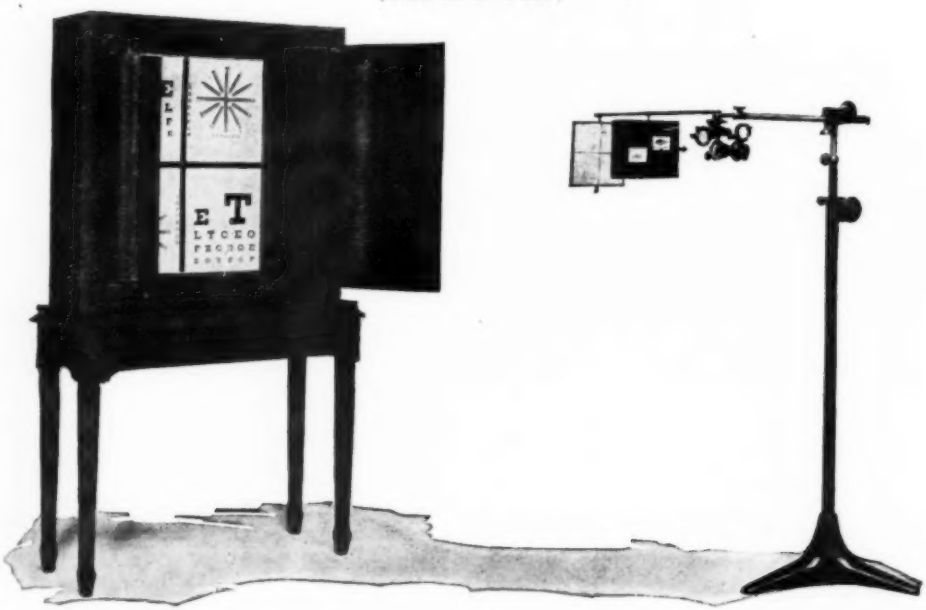

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